This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

Med 4286.1

HARVARD COLLEGE
LIBRARY

TRANSFERRED FROM THE
BUREAU FOR RESEARCH
IN
MUNICIPAL GOVERNMENT

~~P49 box~~ Dupl.

Public Health Methods

AND THEIR APPLICATION IN PORTLAND

A Preliminary Study by the Public Health Bureau
of the
CITY CLUB OF PORTLAND

Portland, Oregon, February, 1922

Public Health Methods

AND THEIR APPLICATION IN PORTLAND

This report, prepared by the Public Health Bureau of the City Club and approved by the board of governors, has not been officially adopted by the Club before being published, but is presented in this form for the consideration of City Club members.

BOARD OF GOVERNORS

A PRELIMINARY STUDY BY THE PUBLIC HEALTH BUREAU
OF THE
CITY CLUB OF PORTLAND

PORTLAND, OREGON, FEBRUARY, 1922

* *

Med 4286.1

HARVARD COLLEGE LIBRARY
RECEIVED THROUGH THE
BUREAU FOR RESEARCH IN
MUNICIPAL GOVERNMENT
OCT 29 1934

Jan. 1923
Bureau [illegible]
Municipal Gov[illegible]

PREFACE

TO THE BOARD OF GOVERNORS OF THE CITY CLUB—

Gentlemen:

We have the honor to transmit herewith a study of the public health methods in practice in the City of Portland.

The purpose of this report is to present to you salient features in regard to the public health of the city, and to suggest lines of further research which, we believe, will be of interest to the City Club and will afford it an opportunity to be of service to the community, by placing before the public facts and suggestions for the improvement of conditions which are in need of adjustment.

This report is, necessarily, only a survey, but the facts contained have been obtained through reliable, official sources, including the offices of the City Attorney, the City Engineer, the City Harbor Master, the State Health Officer, Oregon Tuberculosis Association, U. S. Geological Survey, U. S. Weather Bureau, the Public Library, the offices of various organizations concerned in public health work, and through personal investigation by members of the committee.

It is our desire, in presenting this report, to express our appreciation for the aid given by various City Club members, and City Club friends, in the collection of the data and in the compilation of the report.

Respectfully submitted,

PUBLIC HEALTH BUREAU OF THE CITY CLUB.

N. E. Wayson, M. D., *Chairman*
P. W. Beasley
E. Earl Feike
T. H. Sherrard
L. Howard Smith, M. D.
Frederick D. Stricker, M. D.

Portland, Oregon, February 15, 1922.

TABLE OF CONTENTS

INTRODUCTION—

I. BUREAU OF HEALTH

1. Organization and Administration............Page 9
2. Epidemiological Activities..................Page 11
3. Food Inspection............................Page 16
    - Milk..................................Page 17
    - Restaurants..........................Page 19
    - Meat...................................Page 21

II. SANITARY ENGINEERING

1. Water Supply..............................Page 24
2. Sewage Disposal...........................Page 28
3. Garbage Collection and Disposal...........Page 30
4. Housing...................................Page 31
5. Port Inspection...........................Page 31
6. Industrial Hygiene.........................Page 32

III. PUBLIC HEALTH AND SOCIAL SERVICE

1. Maternal and Infant Welfare..............Page 33
2. School Inspection.........................Page 34
3. Anti-Tuberculosis Activities................Page 34
4. Out-Patient Clinics and Venereal Diseases..Page 35

IV. RECOMMENDATIONS.........................Page 36

APPENDIX

1. Welfare Organizations.....................Page 37
2. Personnel of Bureau of Health............Page 39
3. Milk and Meat Reports....................Page 40

Public Health Methods

AND THEIR APPLICATION IN PORTLAND

INTRODUCTION

Public Health Methods are the methods used to preserve the health and prolong the life of the individual as related to the mass of the population. Aiding in the development of these methods and the accomplishment of these purposes, have been the modern means of disease-prevention revealed by the sciences of biology, chemistry, physics and political economy in combination with the applied science of engineering.

All health agencies which function efficiently are guided by the laws of these sciences, and their facilities for operation must include the personnel and equipment necessary to investigate and to execute these laws.

Area and Population of Portland.

The geographical location of a city, its size, topography and climate, as well as the origin, mental condition, age and number of its inhabitants, are natural factors which affect the application of general scientific laws.

Portland covers an area of 66.59 square miles and in this respect is the eighth city of the United States, while in respect to population it is twenty-fourth, with a population of 258,288, according to the census of 1920. These facts naturally have a decided bearing upon the administration of public health agencies and greatly affect the city's particular needs.

It is manifest that a community with an average population of 3880 per square mile has fewer disease problems and difficulties than overcrowded cities with an equal population in a few blocks. The family with the walls of the house and one hundred feet of lawn space between it and the next family does not need the same supervision to protect it from a contagious disease affecting the second family as is needed when they are separated by a single nine inch wall and a few feet of corridor used in common by both. The child who is obliged to use a common corridor as a play ground is more prone to contract a dangerous disease from his playmates, than he who can play in ten thousand square feet of open space without coming in contact with another human being.

Topography and Climate Important Health Factors.

People who live in a city with a topography like that of the residential district of Portland, with rolling heights and elevated plateaus, have a health advantage over those who must live in the relative confinement of low-lying streets, and flat environs. In other words, the free circulation of clean air, the rapid run off of surface waters, and the daily fluctuation of the temperature favored by these heights projecting above the heated streets and buildings, enable the individual to recuperate from the wear and tear effected by his daily occupation. This daily resuscitation aids in building up his resistance to disease.

The meteorological conditions of any locality play an important role in the health of its population. The following report is taken from the Annual Meteorological Summary of the U. S. Weather Bureau of Portland.

> Portland is the westernmost large city in the United States. It is built along the Willamette River, near where this stream unites with the Columbia. While it is about 60 miles in a direct line from the ocean, and about 100 miles from the mouth of the Columbia River, the business district of the city is mostly less than 50 feet above mean sea level, and there is a noticeable tide in the Portland harbor, amounting at times to more than 3 feet. Council Crest, within the city limits, has an elevation slightly in excess of 1000 feet. The Coast range lies to the west, the Willamette Valley extends southward, rolling hills are across the Columbia River to the north, and the ground rises eastward to the Cascade Mountains. The mountains are cut through by the Columbia River.
>
> Portland is in the latitude of southern France and northern Italy. Its climate is equable, being relatively free from extremes of temperature, high winds and destructive storms.
>
> While the normal annual temperature is about the same as that at Atlantic City, N. J., 52.4°, the July temperature compares closely with that at Winnipeg, Man., and the January temperature is about the same as that found at Roswell, N. Mex. In a normal year there are 31 days when the temperature falls to freezing or lower, and 5 days when it reaches or exceeds 90°. In summer there is an average range of 21° between the warmest and coolest hours of the day; in winter the average range is 11°.
>
> The average date of the last killing frost in spring is March 19th and of the first killing frost in fall is November 20th.
>
> The relative humidity in summer averages 83 per cent at 5:00 a. m. and 48 per cent at 5:00 p. m.; in winter the average is 86 per cent at 5:00 a. m. and 77 per cent at 5:00 p. m.
>
> The normal annual rainfall is 45.13 inches, which is about the same as that at New York City. December is the wettest month, with 7.34 inches, and July the driest with 0.54 inch. The average year has 158 days with 0.01 inch or more rain, and 57 days with 0.25 inch or more. The average annual snowfall is 15 inches. The snow usually falls in small amounts and melts quickly. In an average winter there are about 5 days when snow remains on the ground long enough to be measured at the hour of the evening observation.
>
> The normal duration of sunshine for the year is 2,053 hours. The average for the three summer months is 874 hours, or 9 hours and 30 minutes a day. For the same period New York has 8 hours and 35 minutes and San Diego, Cal., has 9 hours and 21 minutes.
>
> The average wind velocity is 6 miles an hour as compared with 7 miles at Seattle, Wash., and 16 miles at Chicago, Ill. Winds from the southeast, south and southwest are moist, and in winter are mild; in summer southwest winds are cool. Northwest winds are generally cool and moderately dry. Winds from the north, northeast and east are dry; in winter they are cold and in summer warm; this is particularly true of east winds.
>
> Tornadoes are unknown. Thunder is heard about three or four times a year, and a light hail falls about as often, seldom doing damage. Ice storms sometimes cause damage to overhead wires. Dense fog occurs on an average of 24 times a year, being most frequent in autumn.

The human stock in Portland is not unique in comparison with other western cities. The average age of the people is less than that of many of the eastern cities. Seventy-six per cent of the people are less than 45 years of age, and should therefore exhibit a lower death rate unless greater hazards to health are present. Economic conditions often seriously affect the health of recent immigrants, since these people are usually suffering from the conditions which have impelled them to emigrate from their native countries. In 1920 the population of Portland contained 18.2 per cent foreign-born, 16.2 per cent native-born of foreign parents and 10.7 per cent native-born of mixed parentage; thus, 45.1 per cent of the people of the city are but one generation removed from the racial, economic and environmental conditions of their native countries. These factors tend to modify the methods used by health agencies in the prevention of disease.

Department of Health is Official Agency.

In cities of the size of Portland, the central agency for public health activities is the Department of Health. This department is frequently organized as a board of officers, several of whom have special or technical training in medical or sanitary procedure, but it may be a division or bureau of a larger unit as it is in this city. In most countries and states, there are provisions by which the health agencies of both the state government and the federal government may assist the city.

The department or bureau of health is that which is legalized and empowered by the public to regulate sanitary procedures through enactment of rules and by their execution. To this authorized agency is delegated police powers which enable it to enforce these rules.

The powers of the local health department are strengthened through the structure of our state and federal government. The state health department is so constituted that it may aid the city in times of stress or definite inadequacy of local machinery, especially if the situation threatens the health of residents of the state outside of the city. The federal government will aid the state and city authorities upon request of the state officers, or it will assume charge if necessary for the protection of other states. The federal government further aids the local agency through supervision of the sanitation of foreign and interstate common carriers and the inspection of traveling citizens and immigrants.

In addition to the constituted authorities, there are numerous voluntary agencies which, though lacking in power are of great aid in public health work. They originate, usually, in a high type of philanthropy and accomplish their ends through that most powerful of all public health procedures, the education of the public.

The efficiency of the Bureau of Health is dependent upon its legal foundation, its organization and its facilities for operation. These features are controlled by public opinion, as reflected through the city budget, and by the contribution of services and financial aid through volunteer agencies. The activities of this one division of the city government afford an index to the stage of development of public health methods within the community.

Study is Outlined.

Recognizing that the activities involved in the protection of the health of the public are of broader scope than those assigned to the Bureau of Health, your committee has used the following general outline in the pursuance of its study.

I. BUREAU OF HEALTH.
    1. Organization and Administration.
    2. Epidemiological Activities.
    3. Food Inspection.

II. SANITARY ENGINEERING.
    1. Water Supply.
    2. Sewage Disposal.
    3. Garbage Collection and Disposal.
    4. Housing.
    5. Port Inspection.
    6. Industrial Hygiene.

III. PUBLIC HEALTH AND SOCIAL SERVICE.
    1. Maternal and Infant Welfare.
    2. School Inspection.
    3. Anti-Tuberculosis Activities.
    4. Out-Patient Clinics and Venereal Diseases.
    5. Organizations.

IV. RECOMMENDATIONS.

APPENDIX.

I. BUREAU OF HEALTH

ORGANIZATION AND ADMINISTRATION

The charter, adopted in 1913, provides that the power and authority of the City of Portland shall be vested in a council consisting of a mayor and four commissioners. The mayor shall designate one member of the council to be commissioner in charge of each department. The distribution of the work among the departments, also, shall be made by the mayor. Commissioners may be transferred from one department to another and the distribution of the work of the department may be changed by the mayor by order which shall be filed and preserved as an ordinance.

On April 24, 1914, the Council passed Ordinance No. 28871, by which the five departments of the city were subdivided into offices called "bureaus." The office having the administration of the health laws of the city was designated as the Bureau of Health which includes the following divisions:

Medical Division.
Free Dispensaries.
Emergency Hospital.
Bacteriological Laboratory.
Chemical Laboratory.
Sanitary Division.

Thus, the Council is the Board of Health of the City. The health officer is the executive officer of the Board, by virtue of Section 241 of the charter of 1903, now an ordinance through provision of the charter of 1913.

Section 82 of the present charter provides that each commissioner shall appoint and remove the incumbents of all subordinate offices and employments in his department, subject to the civil service rules of this charter. Chapter IV, Section 97 of the charter exempts employees of the Health Department from civil service regulations. (The phrase is "Health Department," though the legal title is "Bureau of Health.")

State Law Defines Status of Bureaus of Health.

Section 8370, Chapter 264, of the Oregon laws, provides that the boards of health of each city and county shall be subordinate to the state health department, and further provides that the health officer may be removed by the State Board of Health. Through these various provisions, there is apparently a conflict in authority between the state and the city commissioner, who is in practice the dictator of the Bureau of Health.

The phraseology of the constitutional amendment of 1906, known as Section 2, Article II, provides in part, as follows:

The legislative assembly shall not enact, amend or repeal any charter or act of incorporation of any municipality, city or town. The legal voters in every city and town are hereby granted power to enact and amend their municipal charters, subject to the constitution and criminal laws of the State of Oregon.

The charter of 1913 abolished all boards, including the Board of Health provided for in the charter of 1903. The powers of boards previously authorized were vested in the council by the later charter.

Commissioner Supreme in Health Administration.

Under the provisions above outlined, one commissioner, who may not be qualified in sanitary procedures, is made supreme in the execution of all health regulations. Further, he has one vote in the council of five members who have no special training or technical knowledge of health work. The health officer is therefore in the position of a foreman of a group of employees selected, appointed and controlled by a manager who is not acquainted with the business in hand. The health officer may make suggestions, but his power ends with the suggestion and may end disastrously for him if the suggestion conflicts with the preconceived ideas of his manager.

The duty of the health officer, as outlined under Section 241 of the charter of 1903, now an ordinance, is the enforcement of the ordinances relating to the sanitary affairs of the city and the rules and regulations of the Board. The greater part of the present sanitary code of the city is established in an unprinted ordinance No. 33986.

There is but one official typewritten copy of this ordinance and in so far as can be determined there are but two other typewritten copies. Parts of the ordinance referring to milk inspection, meat inspection and the housing code have been printed and a limited number distributed.

Per Capita Appropriation for Health Work is Low.

The means for the execution of the health ordinances were provided, in 1921, through appropriations totalling $130,303.53, or 50.5 cents per capita. The funds were divided as follows: Salaries $89,180.00, operation and maintenance $40,871.91, miscellaneous appropriations $251.59. To partially offset these amounts set aside for health work in the city budget, the Bureau of Health turned into the general fund, in 1920, collections amounting to $19,582.36, and for the first six months of 1921, collections of $12,667.00 with an estimated collection for the year 1921, of at least $25,000.00. Assuming that the entire amount appropriated was expended, and crediting the estimated collections, this would mean a cost of $105,303.50 to the City of Portland, a per capita tax of 40.8 cents, for the protection of its health, including $7,800.00 for care in the emergency hospital, of cases of accident and injury.

Because of the difference in health conditions and the lack of uniformity in city budgets, an attempt to compare Portland's appropriation for health work with those of other cities is unsatisfactory.

The personnel of the Bureau of Health, more or less under the control of the health officer, comprises 50 officers and employees on full time and seven others on part time. The above personnel is inadequate for a city of the size of Portland and lacks specialized technical training essential for efficient public health work.

The divisional assignment, salary allotments and hours of service are shown in the *Appendix*. The bureau is allotted, for its transportation, two Dodge automobiles, two Chevrolet automobiles, eight Ford automobiles, and in 1920, car tickets, to the amount of $1,055.45, were used.

SUMMARY

The Bureau of Health, in charge of a city commissioner designated by the mayor, is the official health agency of the city. There are conflicting state laws and city ordinances which make the status of the bureau and its power indefinite.

The health officer, the executive officer of the Bureau of Health, has no authority in the preparation of laws of sanitation. These are dictated apparently by a group of commissioners who may have little knowledge of and no training in the technical matters involved. The authority of the health officer over his employees is nullified by their exemption from civil service requirements, which makes their appointment subject to a political officer.

The city does not possess a single printed copy of its ordinances, and but one complete official typewritten copy. One typewritten copy of the ordinances concerning sanitation can be found in the office of the Bureau of Health. A limited number of copies of special sections or ordinances have been printed.

It is difficult to determine the needs of the Bureau of Health in finances and facilities, because of the irregularity of its organization.

EPIDEMIOLOGICAL ACTIVITIES

Epidemiology is the science of the cause and spread of disease. It involves the relation of the phenomena of disease to conditions of heredity, habit and environment.

The purpose of epidemiological investigation is to ascertain in detail those conditions, either general or local, which are of actual importance in the spread of a disease. The first requisite in the accomplishment of this purpose is a thorough system of reporting to a responsible authority of every case of communicable disease.

Communicable Diseases are Reportable.

Ordinance No. 33986 classifies and enumerates certain diseases as reportable diseases, dangerous to the public health, and provides that written notice of the existence of a communicable disease shall be sent to the Bureau of Health by any person, and particularly any physician, who may have knowledge of the case. This list is not complete; the arrangement is faulty; and the mixture of scientific and common names is confusing. A thorough revision should be considered. The ordinance further provides that the public shall be notified of the case through flagging or placarding the boat, ship, car, or other conveyance or building, other than a hospital, wherein there is any person having any dangerous or communicable disease.

The State Board of Health, under its constituted authority, has regulations which contain similar provisions. The regulations of the State are at variance with those of the city, in both the classification of diseases dangerous to the public health and in the manner of reporting. The State code is, however, in accordance with the federal regulations. The city ordinances should be amended to agree with the state and federal laws. Only uniform methods of registration will give the information necessary to control communicable diseases.

Communicable diseases are reported to the Bureau of Health on a card such as has been adopted by the federal government. The reports are sent in by physicians, school teachers, citizens and sometimes by a member of the household. When this card is received by the Bureau of Health, the case is immediately investigated and three other cards made. The case is classified according to disease, to location or street number, and according to name of patient. The date of the first visit and the time for making the second are recorded. The second visit is usually made at the end of the minimum quarantine period.

City Officials Responsible for Quarantine.

It is difficult to determine the actual efficiency of the system, but it is the opinion of your committee that at least 90 per cent of the cases are being reported and quarantined. All cases are quarantined and released by city officials. A systematic compilation of reports has not been attempted because of insufficient help and funds. Communicable diseases are also registered in special ledgers, one each for diphtheria, smallpox, scarlet fever, and one for other communicable diseases.

A spotting map showing the daily location of communicable diseases in the city is not used. It is the opinion of your committee that such a map would add to the efficiency of the system and justify its expense.

Because of a lack of funds no regular reports are published, and records which would have a public value are not being compiled.

Reports of Vital Statistics Essential.

Birth reports are essential, not only to the public from the standpoint of sanitary procedures, but are of the utmost importance to the individual frequently in establishing his constitutional rights before the courts.

The City Ordinance No. 33986, on public health and sanitation, requires the health officer and his deputy to perform the duties of Chapter 268, General Laws of the State of Oregon, 1915, and other laws of the State which provided for the registration of births and deaths. The state is working under Chapter 264, laws of 1919.

The state law in regard to the registration of births and deaths has been made to conform with federal regulations, and with practices which are uniform throughout the registration area of the United States. The city ordinance should be amended in a similar manner.

Oregon was admitted into the registration area in 1919 with the requirement that reports must be over ninety per cent complete. A death report must be signed by a licensed physician and burial is not allowed without a burial permit. Death reports are complete, but birth reports are still far from perfect. Birth reports are required of the physician, midwife or householder in attendance at the time of birth. Many of the births are not attended professionally and this is a factor that prevents efficiency in reporting. This work might be stimulated by mailing each mother a certificate of birth, and the City of Portland could make no better move.

Portland's birth rate for 1919 was 19.1 per thousand while the rate for the United States was 24.6. This probably indicates incomplete reports.

Reports of births and deaths are edited, corrected and recorded when received. Deaths are classified according to disease, age, sex, color, social condition and birthplace. This classification is used for the annual report. The causes of death are classified in accordance with an international list.

The personnel engaged in the compilation of vital statistics consists of a chief clerk and an assistant. They have had no technical training for this work.

Prior to 1918, an annual report was published. Since that time, copy has been made and held awaiting funds for publication.

Diseases Transmitted Under Special Conditions.

Knowledge of most of the important communicable diseases has advanced to the point where it is known that certain fundamental conditions are necessary for their propagation and transmission. Specific organisms are propagated in human or extra-human sources and certain general conditions are required for their transmission, whether by mechanical conveyance of infective material or through the agency of an intermediate host. These broad conditions of transmission of disease may be fulfilled in many ways.

The natural habitat of the typhoid bacillus is the human body and it is spread by the conveyance of infective excreta from their sources to the mouth, the portal of entry, perhaps through water or food.

There are many possible modes of conveyance: by personal contact, either directly, or indirectly through a third person; by flies having access to excreta and thence to food; by contamination of water or milk, and various other ways. From a standpoint of prevention a knowledge of the relative importance of these various routes is necessary.

This knowledge enables the health officer to proceed in the control of epidemics.

Regulations for the Control of Communicable Diseases.

In Portland, the control of contagious diseases is provided for in Ordinance No. 33986.

The provisions of this ordinance include the following measures:

ARTICLE I.

1. Notification of the location of diseases, both to the Bureau of Health and to the public.

2. Quarantine of afflicted persons and those in contact with the disease, including their removal to places of detention, quarantine and fumigation of premises and property.
3. Prohibition of affected children from attending school.
4. Prohibition of the entrance to the city of afflicted cases.
5. Provision for vaccination against smallpox during an epidemic of that disease.
6. Regulation of funerals.

Article II.

1. Regulations for the control of those venereally affected, including reports to the authorities, examination by the constituted powers and quarantine and detention when necessary.
2. Provision making it unlawful to spread venereal disease.
3. Provision for records of the sale of drugs for venereal diseases by druggists.
4. Provision for liberty under bond in lieu of detention of those affected.

Article III.

1. Provision for a permanent record of patients in hospitals.
2. Provision for reports to Police Bureau concerning treatment in the hospitals of unidentified patients suffering from accident or poisoning.
3. Prohibition within the city of the treatment in hospitals of pulmonary tuberculosis patients.

Article IV.

1. Provision for the registration of births and deaths in accordance with the state laws.

Enforcement of Provisions.

The enforcement of these provisions is in the hands of the health officer, the assistant health officer, two medical assistants, the quarantine officer, and a lay inspector.

Unfortunately, the health officer has been obliged to make many of the inspections and spend much of his time visiting cases, instead of organizing and directing his force.

Other assistants in the enforcement of the ordinance are school nurses, the bacteriological laboratory staff and clerical help.

The city is divided into sanitary districts. The daily work is apportioned to the various officers and assistants according to its urgency and volume. Isolation of the affected individual, together with quarantine of the contacts, is established and maintained by flagging and placarding and by unannounced visits by the authorities during the detention period.

With the release of the case from quarantine, disinfection and fumigation are instituted in order to destroy the causative virus. This practice is known as "terminal disinfection," since it is the final quarantine procedure. It is a means of accomplishing a thorough cleansing of patient and premises, and instills in the public the necessity of precautionary measures to prevent the spread of certain communicable diseases.

Control of Venereal Diseases is Problem.

Venereal diseases are treated through a system of reporting, examination and certification of food handlers, the spasmodic detention of infected panders, and treatment by free dispensaries. Through the long established custom of regarding these conditions as unclean and unfit to discuss in public, it is practically impossible to control the spread of this dangerous disease, though much has been done to decrease the number infected.

Facilities for the detention of those afflicted with communicable diseases are woefully inadequate. There are only two public hospitals conducted for their isolation and treatment. The Isolation Hospital, located at Kelly's Butte about seven miles from the city, will accommodate 45 patients. There are four wards of ten beds each, one ward of four beds, and a detention ward with one bed. The hospital has an average of twenty-two patients, but during epidemics it is not possible to accommodate the number of patients that is should. The arrangement is such that a few cases involving two or three different communicable diseases in each sex, prevents the filling of the wards to capacity. Cases of smallpox, diptheria, scarlet fever, erysipelas and a case of leprosy were, at one time, held in the detention ward.

The hospital for the detention of venereally infected female panders, located on Sandy Road fourteen miles from the city, has a capacity of forty patients with an average number of thirty. This hospital is supported by state appropriations.

Bacteriological Laboratory Useful.

Perhaps the most valuable unit in the control of contagious diseases is the bacteriological laboratory which affords the means of definite diagnosis of many diseases. It is located in the City Hall, and is under the supervision of the health officer. A consultant devotes part time to the technical supervision of the laboratory and to examinations about which there is doubt. The technical detail is performed by a graduate physician without special training, who devotes half time to the city's work. The technical routine of less importance is executed by a trained woman as laboratory helper.

This laboratory examines bacteriological cultures from patients suspected of diphtheria or other local throat infections; sputum from cases suspected of tuberculosis; blood and urine from diseased individuals whose conditions may be reflected in these tissues or excretions; pus or blood from those venereally infected; water suspected of harboring disease producing bacteria; and, milk to determine its bacteriological cleanliness and purity and its potentiality in the production of communicable diseases.

The health statutes of the state are adequate, but a stricter enforcement of the laws and the support of law-abiding citizens are essential. Although a consistent and untiring effort is apparently being made by the present executive officer of the Bureau of Health, it is the opinion of your committee that preventable diseases are prevalent in Portland.

During the year 1921, there were in Portland 361 cases of tuberculosis and 116 deaths; 34 cases of typhoid fever and 8 deaths; 54 cases of whooping cough and 8 deaths; 1567 cases of diphtheria and 53 deaths; 1,881 cases of measles and 6 deaths; 265 cases of scarlet fever and 3 deaths; 44 cases of erysipelas and 11 deaths; 561 cases of smallpox with no deaths, while in the entire State of Pennsylvania, with a population of 8,720,000 and with a strict compulsory vaccination law, there were only 219 cases. Smallpox cost the City of Portland last year at least $35,000, a sum which is nearly half the appropriation for the expenses of the Bureau of Health, excluding that for hospitals.

SUMMARY

Epidemiology is concerned with cause and spread of disease. Reporting of cases of communicable diseases is necessary in order that control may be effected. Such diseases are classified and enumerated by ordinance, but arrangement is faulty and text is confusing. Classifications of diseases and methods for reporting are not in accord with standards adopted by the state and federal governments. Card records of cases reported to the bureau are kept. A spotting map would add to the efficiency of the system. Since 1918 records have been held on file awaiting funds for publication.

Registration of births and deaths is essential. Death reports are complete but birth reports are incomplete. City ordinance should be made to conform with state and federal regulations governing the registration of vital statistics.

Knowledge of fundamental conditions necessary for the propagation and transmission of communicable diseases, enables the health authorities to control epidemics. Unfortunately, the health officer is called upon to attend to petty details, instead of organizing and directing the work of the bureau.

There is an unnecessary prevalence of smallpox, and probably of diphtheria, in spite of the fact that these diseases are controllable by modern methods.

The detention hospital is inadequate.

The bacteriological laboratory is a valuable adjunct to the Bureau of Health in control of communicable diseases.

FOOD INSPECTION

It is evident even to the casual observer that urban populations have no opportunity or facilities to provide their own food supply. Further, they have, as individuals, little knowledge or control of the conditions under which their foods are produced. It is, consequently, a public function to regulate the food supply, as to its adequacy and purity, but especially its purity.

Many diseases have, as their specific causes, impure foods which harbor parasites or are changed chemically through fermentation and putrefaction. While the purity of the food supply of the entire public is important, that of the infant and growing child is of most importance. The chief food of all young children should be milk. In this country, the milk of cows is so prevalently used that its production and dispensation must be rigidly guarded.

MILK INSPECTION

The production and distribution of milk and cream in Portland are regulated by Articles 11 to 14 of Ordinance No. 33986, passed by the Council, April 10, 1918.

With certain exceptions, the ordinance is satisfactory and its enforcement is effective.

The salient features of the ordinance are its provision for: (1) the locating of dairies within the city; (3) the inspecting of herds and dairies and licensing of dairies and vendors of milk; (3) the fixing of standards for cleanliness and purity of milk; (4) the regulating of the sale and distribution of milk, including regulations governing certified milk; (5) the inspecting of the bottled product; (6) the empowering of the Bureau of Health to make regulations with the force of law and, (7) the fixing of penalties for failure to comply with the ordinance.

All the provisions of this ordinance apply to dairies of three or more cows. The two-cow dairy is exempt from the provisions of the ordinance, and, therefore is unsafe.

Portland's milk is obtained from a territory having a radius of thirty miles. That produced within a ten-mile radius may be delivered either raw or pasteurized, but that from beyond the ten-mile zone must be pasteurized.

Milk delivered by the producer must be bottled on the premises; that delivered by a wholesale milk dealer may be shipped in cans to the bottling-stations in Portland. No milk may be retailed except in bottles. The quantity of milk consumed daily in Portland is approximately 26,000 gallons, of which one-half is pasteurized.

Premises, Herd and Product Inspected.

Inspection falls under two heads, inspection of premises and inspection of the bottled product. A preliminary inspection of premises and herd must be made before a license may be issued. This includes the tuberculin test of the cows and a thorough inspection of the general sanitary conditions of the producing establishment. In addition to the initial inspection, two inspections a year are required by the ordinance. In many cases these are not made, but further inspections are made whenever results of the examination of samples of the milk indicate the necessity for an inspection of the premises.

For the inspection or examination of the milk, samples are taken from the distributors and analyzed by the Bureau of Health. These samples are taken at random, as to time of day, distributing routes, and containers, and without notice to the distributor. At least one sample a month is taken from each distributor and as many as twenty-five may be taken from the larger distributors. The samples are taken from containers at the milk-depots, or bottles are selected from the delivery trucks.

The city inspection force of eight, includes the chief inspector; three inspectors in the field, of whom one is the sample man who collects samples from delivery trucks, and two are sanitary inspectors; one milk-plant inspector; and one veterinarian, testing for tuberculosis. The examining force consists of the assistant bacteriologist and one chemist. Four automobiles are available for transportation of the field force.

The inspectors are chosen by the health officer from applicants who have the equivalent of the training and experience required of a graduate of the Oregon Agricultural College in the dairy courses.

Laboratory Determines Chemical Contents and Purity.

A very important part of the inspectors' work is sampling milk and submitting the samples to the Bureau of Health laboratory for determination of chemical content and purity.

The chemist and bacteriologist are appointees of the city commissioner upon recommendation of the health officer, who requires that they shall have had the training equivalent to that given at Oregon Agricultural College to those graduating with major courses in chemistry and bacteriology. The technician is one who has had no previous special training, but has been taught by experience in practical laboratory work. These employees are directly responsible to the health officer.

In event of any unusual development in the laboratory work, material is referred to the state laboratory of the Dairy and Food Commission, in which the examinations are made by a chemist whose training is that of a graduate at the Oregon Agricultural College.

The city inspection and laboratory force serve directly under the health officer and are responsible to him. The laboratory examination of milk is concerned largely with its fat content, solid content, and bacteria content, but may include acidity and sediment and other less important contents.

Dairy Ratings made from Milk Analyses.

A record of the analyses of the milk samples is kept by the Bureau of Health. Every six months a contest is held when samples are taken from all dairies and a rating made. The standard for this rating is the score card of the U. S. Bureau of Animal Industry.

Dairy ratings, according to the milk score-card, are published semi-annually in the newspapers.

The last milk contest between Portland dairies was held in December 1921, following examinations of milk samples taken during the preceding six months.

From the 162 dealers and dairymen the following results were obtained:

Pasteurized Milk	*Raw Milk*
7 dairies above 95 rating.	44 dairies above 95 rating.
6 dairies 90 to 95 rating.	66 dairies 90 to 95 rating.
6 dairies 80 to 90 rating.	31 dairies 80 to 90 rating.
	2 below 80 rating.

Of the above 162 dairymen, two distribute certified milk which is rated above 95.

The average bacterial count on the entire number of milk samples collected by the Milk Department during the year of 1921 was 15,000 bacterial colonies per cubic centimeter.

Figures of greater importance, however, are those indicating the percentage of the supply with high bacterial counts. Milk with a large number of bacteria undergoes fermentive and putrefactive changes more readily than that with lower content. During the past year 90 per cent of the samples of raw milk examined were found to contain less than 50,000 bacteria to the cubic centimeter. These samples, however, are not indicative of the condition of milk produced within the city limits by approximately 1500 to 2000 cows, poorly supervised by the authorities because the ordinance exempts two-cow dairies. Inspection is practically limited to five-cow dairies. These small dairies constitute a constant potential menace to the public health.

During the year 1921, there were made by the city, 6272 laboratory examinations of milk, in which one per cent of the samples were found below standard.

The use of score cards in rating dairies and milk plants has been virtually abandoned. The only score card in constant use is the milk score card used in scoring the milk product. This is undoubtedly good practice, always providing that the sampling is frequent enough, and that the analyses are thorough and reliable. The additional cost of scoring dairies and plants may well be saved since the ultimate test of a dairy is the quality of its product.

SUMMARY

It is a public function to regulate the food supply.

The ordinance regulating the production and distribution of milk is satisfactory and its enforcement is effective, except that it does not apply to two-cow dairies. Milk produced by 1500 to 2000 cows is not inspected and constitutes a potential menace to the public health.

Inspection covers general sanitary condition of dairy, tuberculin test of cows and laboratory test of milk.

The ultimate test of a dairy is the quality of the product. Dairies are rated according to the bacterial analyses of the milk. Records are kept on milk score cards and dairy ratings are published semi-annually in the newspapers.

INSPECTION OF RESTAURANTS AND FOOD-HANDLERS

Not only does the source of the food supply concern the public, but since many of the people have their food prepared by agencies beyond their individual control, such as hotels and restaurants, it is necessary that these agencies be regulated by city ordinance to insure sanitary preparation of food.

Ordinance No. 33986, on Public Health and Sanitation, provides that all food-establishments in Portland must keep food in a clean, pure and wholesome condition; provides for licensing all food-establishments; prohibits the preparation of food for sale in basement kitchens or in unventilated, unlighted rooms; prohibits the sale of unwholesome, unclean foods; prohibits the use of unclean containers for food and provides for a medical examination of all persons who handle food. It requires that all food must be protected from contamination; that certain foods kept or offered for sale must be screened against flies and protected from dust and bacteria, and that food-establishments must take precautions to prevent rats, mice and vermin from gaining access to food kept or offered for sale. This ordinance provides for the inspection of all food-establishments at frequent intervals.

Licenses to sell food are good for six months. There are about 3500 food-establishments of which about 450 are restaurants. Health cards are good for six months. There are about 16,000 registered food-handlers to whom cards are issued.

Physical Examinations of Food-Handlers Required.

Inspection of food, food-establishments and food-handlers is under the Sanitary Division of the Bureau of Health. The inspection force of the Sanitary Division consists of a chief inspector, one inspector assigned exclusively to housing code inspection, seven inspectors assigned to sanitary and food inspection, one full-time, one two-thirds and one half-time physician working on physical examinations of food-handlers, and two women clerks.

The city is divided into seven sanitary inspection and food inspection districts. The market along Yamhill street, from Fifth street to the river, is combined with all bakeries and confectioneries throughout the city to make one inspection district. Inspectors in the St. Johns and Mt. Scott districts are provided with automobiles.

The sanitary division condemned and sent to the city incinerator for destruction, 577,000 pounds of unwholesome and unclean food during the city fiscal year, December, 1920, to November, 1921.

Restaurants are rated once a year, in January. The ratings are made in accordance with score cards, and classified under the headings of dining-room, store room, kitchen, handling food, cleanliness of employees. The rating of a restaurant will suffer most from an open counter, a cellar kitchen with poor light and ventilation, badly-washed dishes, and uncleanliness of employees.

Down-town restaurants are inspected every few days. It should be understood that this is not an inspection of the quality of food, but of the conditions surrounding the preparation of food. For example, milk is inspected by the sanitary division only with regard to methods of handling; the quality of milk is determined by samples examined by the milk inspector. The results of the annual rating of restaurants are not made public, although a proprietor may ascertain the rating of his restaurant upon inquiry at the City Hall. Dairy ratings are published semi-annually in the newspapers and are given to any inquirer at the City Hall. It is not apparent why restaurant ratings are not handled in the same manner.

The clause of the ordinance pertaining to the screening of food-stuffs is applicable throughout the year to the meat and fish markets, to dealers in prepared foods and to confectioners. During the summer months, May to October, inclusive, it is also applicable to fruit and poultry stands.

There is much room for improvement in the enforcement of the screening clauses of the ordinance. Improvement in the food supply of the city, however, can come about only in answer to a more intelligent demand on the part of the general public. Such a demand will arise only when the general public is educated to the needs of the situation, and becomes actively interested in it.

SUMMARY

All food-establishments are inspected at frequent intervals in regard to conditions surrounding the preparation of food. Health cards are issued to food-handlers upon examination by a physician.

Restaurants are rated once a year, but it is not apparent why the ratings are not made public as are the dairy ratings.

Regulations pertaining to the screening of food-stuffs in restaurants, markets and stands are not enforced.

Inspection of Meat and Other Foods

Ordinance No. 31461, effective February 28, 1916, regulates the sale of meats within the City of Portland.

This ordinance provides: (1) that it shall be unlawful to slaughter within the city limits; (2) for the registration of slaughter-houses and the issuing of permits and house-marks to those which slaughter more than five animals per week; (3) a standard of sanitary conditions surrounding the slaughtering of animals in slaughter-houses; (4) ante-mortem and post-mortem inspection of animals killed in officially authorized slaughter-houses; (5) post-mortem inspection of carcasses killed in other slaughter-houses and brought to the city for sale; (6) standards for the content of wholesome products and elimination of potential disease-bearing products; (7) disposal of condemned carcasses and parts by rendering or destruction; (8) an inspection force of a chief meat inspector and two other inspectors on salary, and other inspectors without salary; (9) penalty for the violation of the ordinance by fine or imprisonment; (10) additional rules and regulations to be made by the city commissioner in charge of the Bureau of Health.

The enforcement of this ordinance is in the hands of an inspection force consisting of a chief meat inspector and four other official inspectors who must be qualified by training and experience and must be graduate veterinarians. They are responsible by law to the city commissioner in charge of the Bureau of Health, but by regulation are responsible to the health officer.

Permit to Use House-Mark Weakens Ordinance.

The ordinance in the main is good, since it is based on the experience of the federal government and the rules for meat inspection of the U. S. Bureau of Animal Industry. The great weakness of the ordinance is contained in Sections 6 and 10, in which provision is made for a house-mark as follows:

> SECTION 6.—When such application is filed with the Bureau of Health, the Chief of the Bureau shall cause said establishment to be examined, and if the same shall be found to comply with the provisions of this ordinance relative to the construction, equipment and cleanliness of such establishment, he shall issue a permit and assign to such establishment a house-mark of such size and design as he may approve, being careful to prevent the use of a design which may be confused with another previously approved, or with the inspector's mark.
>
> SECTION 10.—If an inspector does not appear at such official establishment at the time designated, ante-mortem and post-mortem inspection may be dispensed with, slaughtering may proceed, and in lieu of the inspector's mark, the manager of such establishment shall cause to be placed on each primal part of each animal so slaughtered, the ***house-mark of the establishment*** in which the animal was killed. The house mark upon any carcass or part thereof shall signify that the manager of the establishment has examined, or has caused to be examined, each and every part of such carcass, and that he verily believes that the same is not diseased and is fit and wholesome for human food, and that the animal would have passed both the ante-mortem and post-mortem inspections if such inspections had been made.

The use of the house-mark makes it permissible for owners of slaughter-houses to inspect their own meats, thus frustrating the intent of the ordinance. A large portion of the city's meat supply reaches the consumer without adequate inspection.

It is thus possible for a clean, regularly inspected meat market to sell unwholesome meat which has been stamped with a house-mark, because market inspection cannot be relied upon to discover disease in meat. The only value of the house-mark is to trace a piece of meat back to the slaughter-house which is responsible for it. It has no value as a guarantee of inspection. At the present time in Portland, the only mark which carries an absolute guarantee of ante-mortem and post-mortem inspection is the inspection mark (U. S.) of the United States Bureau of Animal Industry. This mark is placed on the primal parts of a carcass—sides, quarters, hams, backs, etc. Any one who takes the trouble to see his meat cut from a primal piece at a market can assure himself that he is getting government-inspected meat.

In federally inspected slaughter-houses every process and every sanitary arrangement is unremittingly inspected by an adequate force of inspectors in constant daily attendance throughout the hours when the house is in operation.

Large Number of Carcasses Not Inspected.

Approximately 6000 carcasses per month are never seen by the city meat inspectors.

If the use of the house-mark were eliminated, the present inspection force of four men would be absolutely unable to carry out the provisions of the ordinance. There are six slaughter-houses within one mile from the city limits subject to city meat inspection. One of these is at present closed on account of litigation. Four of the six houses slaughter every day and each would require the time of one inspector to insure proper inspection.

The chief meat inspector divides his time between inspection of the slaughter-houses and the markets (chiefly the outlying markets), his office work and attention to complaints. He uses one of his four inspectors at the two largest slaughter-houses, a second for post-mortem inspection of carcasses at the twenty-five commission houses, a third is assigned to the thirty large down-town meat markets and the fourth inspects the two hundred and more smaller outlying markets.

During the month of October 1921, the inspector assigned to the two largest slaughter-houses, made ante-mortem and post-mortem inspection of 3346 carcasses. The commission-house inspector reported 3228 post-mortem inspections. In the 30 down-town markets, there were 2103 carcasses given post-mortem inspection, and in the outlying markets 618 carcasses were inspected. The chief inspector and the inspector assigned to outlying markets use automobiles. (See report of Meat Inspection Division in Appendix)

The yearly consumption of meat in Portland approximates 300,000 carcasses. Of this amount, nearly 75 per cent is bought by consumers in meat markets. Practically all meats inspected by the city force are produced in the country immediately tributary to the city. Ninety per cent of the veal and 75 per cent of the hogs come direct from the farm, country-killed. Ninety per cent of the beef is killed at packing establishments. There is but a small percentage of the supply sold in the public market, probably not to exceed one carcass daily during winter and none in summer.

Farm-Killed Meat Exempt.

All of the farm-killed meats are exempt by the ordinance from ante-mortem inspection. Most of the farm-killed meat goes to the commission-houses and is shipped with the head and part of the viscera removed. It is the opinion of your committee that a satisfactory post-mortem inspection cannot be made under these circumstances.

There is no provision in the ordinance for inspection of the manufacture of meat-food products, such as hams, bacon, lard, compound, sausage, corn beef, etc. From these facts, it follows that: (1) the only certain guarantee on meat in Portland is the U. S. Government inspection stamp—fifty to sixty per cent of the meat in Portland markets is federally inspected; (2) sausage, as made in Portland retail markets, is not subject to inspection or regulation; (3) a large proportion of veal and pork sold in the city is country-killed, and therefore, not satisfactorily inspected; (4) poultry and fish are not regulated by this ordinance; and (5) sausage is not inspected for trichinosis.

SUMMARY

Registration of slaughter-houses and inspection of meat provided for by ordinance. Inspectors must be graduate veterinarians.

A large portion of city's meat supply reaches the consumer without adequate inspection, due to weakness in ordinance which permits owners of slaughter-houses to inspect own meats and use house-mark.

All farm-killed meats are exempt by ordinance from ante-mortem inspection. Sausage and other meat-food products are exempt from inspection.

II. SANITARY ENGINEERING

A branch of the city's activities which has a great influence on the general welfare of the public is that classified as Sanitary Engineering. These activities include the following sanitary procedures: (1) the supply of adequate pure drinking water, (2) the disposal of sewage, (3) the collection and disposal of garbage and ashes, (4) the cleaning of the streets, (5) the supervision of housing, (6) the maintenance of proper cleanliness in the port and (7) the prevention of unnecessary industrial hazards.

WATER SUPPLY

An adequate supply of pure drinking water is a fundamental requirement of all municipalities. A definite ratio has been found to exist between conditions caused by drinking impure water and diseases arising from other causes. In other words, a population subjected to the constant assaults of disease-producing bacteria in its drinking water is less able to resist other contagious diseases, or those now thought to be the result of general wear and tear.

The water supply must be pure at its source, and pure when delivered to the consumer. Portland is unique in having as its source of supply, a stream of water pronounced by the U. S. Geological Survey, to be not only the purest in Oregon, but by analysis, the purest stream of water in the United States large enough to be used as a water supply by a large city.

Source of Water Supply Described.

The source of the water supply of Portland (from report of City Bureau of Water Works) is Bull Run Lake, situated in the Cascade Mountains at an elevation of 3500 feet. The lake, about a mile and a half long, nearly a mile wide and very deep, is seven miles northwest from the summit of Mount Hood. The deep canyon of the Sandy River prevents the discolored waters from the glaciers of that mountain from running into the lake, which is supplied entirely from unfailing springs in the steep, rocky slopes surrounding it on all sides.

The only natural outlet of the lake is under an immense mass of shattered basalt, which fills the canyon at its northwest end. From the base of this natural dam, 350 feet below the surface of the lake, the water gushes forth and forms Bull Run River.

After flowing rapidly through a rocky canyon nearly twenty miles, Bull Run River is tapped by two steel pipes, 42 inches and 52 inches in diameter, at a point thirty miles east from Portland and 720 feet above low tide in the Willamette River. The water flows thirty miles through the pipes, directly into the distributing systems, at the rate of 67,500,000 gallons daily.

The pipes are buried deep in the ground and thoroughly protected from heat. In crossing the Willamette River, they are laid in trenches dredged below the bottom of the ship channel. The water reaches the city in seven hours, and is then as cool and sparkling as when it left the river.

Watershed is Timber Reserve.

The region forming the watershed of the lake and river is of volcanic origin. Great ridges of basaltic rock are cleft by deep canyons, and wherever there is sufficient soil, are shaded by dense forests of evergreen trees and are covered with vines, briars, ferns and mosses. It is a rugged wilderness. There is not a habitation or pasture on the watershed of the lake or river above the point where the water for the city is taken out.

The forest shades the snow which every winter covers the highland and retards its melting. The undergrowth protects the soil and prevents it from being washed into the streams. The water is always as clear as crystal, and free from sediment even during the greatest freshets.

The President of the United States, at the request of the Water Commission of the City of Portland, issued on June 17, 1892, a proclamation, setting aside the "Bull Run Timber Reserve," a tract of land containing 222 square miles embracing the water shed described above and an ample margin around it.

In order to lessen the danger of forest fires which might injure the water supply, the public is excluded from the reserve by an act of Congress of April 28, 1904. The Bureau of Water Works cut a fire line trail 1¼ miles long and 100 feet wide along the ridge north of Bull Run Lake last year. If completed entirely around the reserve, this will form the best possible safeguard against fire.

The United States will not sell any land in this reserve, nor allow sheep or cattle to be pastured thereon. As long as the laws governing these matters remain unchanged, the water supply of Portland is relatively well protected.

The Bull Run Reserve is policed by 22 men during that portion of the year when it is accessible to trespassers. No hunters, anglers, hikers or picnickers are allowed within the drainage area of Bull Run Lake. It should, however, be kept constantly in mind that human policing is never perfect. No reasonable effort should be spared to protect this valuable natural resource.

The water has a very low inorganic chemical content. From a sanitary standpoint, however, the bacteriological and biological character of the water is a better index to its purity than a chemical analysis.

The following table gives the chemical analysis of the water from Bull Run River.

Reaction	Faintly alkiline
Free and Saline Amonia	.01
Albumonoid Amonia	.02
Oxygen to oxidize organic matter	.08
Total solid matter	36.0
Total hardness	10.0
Clorine	2.0
Nitrogen as nitrates and nitrites	3.0

The following table gives the bacteriological content of water taken from the faucet.

Bacteria per Cubic Centimeter	*B. Coli per 100 c. c.*	*Date of Report*
5	0	May 5, 1921
8	0	Dec. 11, 1921
3	0	March 13, 1922

Water containing more than 100 bacteria per c. c. or more than 2 B. Coli per 100 c. c. is *unfit to drink.*

Water Distributing System Given in Detail.

The water from Bull Run river is carried to the city, at present, through two steel conduits.

Conduit No. 1, consists of 10.022 miles of 42 inch pipe, 7.772 miles of 35 inch pipe and 6.505 miles of 33 inch pipe, a total of 24.299 miles in length, all steel riveted.

Conduit No. 2, consists of 10.018 miles of 52 inch pipe and 14.742 miles of 44 inch pipe, a total of 24.76 miles in length, all steel pipe of lock-bar construction.

Conduit No. 3, plans and specifications for which are now being made, will be built for the purpose of increasing the supply, which is at present, inadequate during the late summer and early fall months.

The two present conduits terminate at Mt. Tabor, where the water enters four large open reservoirs, having a combined capacity of 19,050,000 gallons, which would be sufficient to supply the city with water for more than 14 hours in case both conduits should be out of commission at the same time. The open reservoirs give the water the advantage of the oxidizing effect of the sun and air. They are protected, however, from pollution and contamination by being adequately fenced and policed.

Thirteen smaller storage reservoirs and pumping plants are used to supply particular sections which are too high to be served by gravity from the Mt. Tabor reservoirs. These smaller reservoirs have a combined capacity of over 173,559,000 gallons, and the pumps installed in connection with them have a combined pumping capacity of 5,902,000 gallons per day.

The following table is a summary of the mains operated and controlled by the City of Portland.

Diameter of Pipe inches	*Cast Iron Miles*	*Wrought Iron or Steel Miles*	*Wood Miles*	*Total Miles*
30	8.278	6.082		14.360
24	12.617	7.111	1.060	20.788
20	8.388	1.253		9.641
18	0.089	1.183		1.272
16	18.708			18.708
14	8.935			8.935
12	49.899	1.155	1.785	52.839
10	15.605	0.840	0.112	16.557
8	258.987	0.539	0.405	259.931
7			0.230	0.230
6	144.559	3.018	1.211	148.788
5			0.189	0.189
4	41.823	3.111	2.789	47.723
Totals	567.888	24.292	7.781	599.961
3½		0.052		0.052
3	0.567	3.142	2.532	6.241
2½		1.130	1.070	2.200
2		102.469	1.308	103.777
1½		30.093		30.093
1¼		8.944		8.944
1		18.445		18.445
¾		2.652		2.652
½		0.907		0.907
Total	0.567	167.782	4.910	173.311
Grand Total	568.455	192.074	12.691	773.272

Due to high pressure on some of the gravity and pump lines, pressure regulators have been installed which control the pressure in all pipes to such an extent that in no case is the pressure less than 20 or more than 80 pounds per square inch.

Meter System Would Prevent Waste.

Statistics relative to the consumption of water in the City of Portland for the past year are as follows:

Estimated population of the city	266,277
Estimated population supplied	272,702
Total consumption for year, gallons	11,272,789,085
Gallons per day, per capita	114.2
Cost of supplying water, per million gallons, figured on total maintenance	$29.51
Cost of supplying water, per million gallons, figured on total maintenance plus interest on bonds	$56.29

In addition to the residents of the City of Portland, there are 27 companies and water districts outside the city limits which are being supplied with Bull Run water. The total consumption of these districts with a population of 6500, amounted during the past year to 14,703,000 gallons, included in the above figures.

Of the 60,533 services now in use, 19,647 or 31.13 per cent are metered, and furnish 52.66 per cent of the total revenue derived from water consumed. It is found to be true in other large cities, and is undoubtedly true in Portland, that with unmetered service the maximum use of water, during the summer months, is from 2½ to 3 times the average use, while with metered service the maximum use is only about twice the average.

The above figures indicate that if all services were metered there would not only be less waste of one of Portland's greatest assets, but the Bureau of Water Works of the city would derive a revenue that would enable it not only to pay operation, maintenance and interest charges, but to carry on new construction work without issuing bonds which must be taken care of by direct taxation.

If such a metering program is not put into effect, larger mains, at a large cost to the public, will have to be laid from the reservoir to the distributing system. This will not be for the purpose of supplying enough water at proper pressure for average consumption, but to make it possible for the unmetered users to continue to waste all they care to at the flat rate, and to furnish the metered users with an amount sufficient to meet their actual needs.

SUMMARY

The population of Portland is not subject to disease hazards in its supply of water.

Bull Run Lake, admirably protected by natural surroundings, furnishes an unfailing source of pure water.

The watershed is a timber reserve and is relatively well protected against fire and pollution by constant policing.

A third conduit from source to the city is needed to insure adequate supply of water during summer months.

Per capita consumption of water is extremely high. A partial use of meters indicates that universal use of meters would prevent waste and provide sufficient revenue for maintenance and extension of the water distributing system.

SEWAGE DISPOSAL

Sewage disposal is an essential procedure in disease prevention. Portland is located in close proximity to the Willamette and Columbia rivers, which possess sufficient current to carry away sewage conveyed into their waters by sewers. Up to the present time, the quantity of sewage disposed of has not been sufficiently large to tax the capacity of these rivers or to produce noxious conditions, except locally, in the Willamette river. As the city continues to grow, additional facilities or special methods will be required for the effective disposal of excreta to avoid nuisance and, perhaps, safeguard the public health.

Trunk sewers leading to either the Willamette river or Columbia Slough have been constructed to serve 58 per cent of the property within the city limits, at a total cost, including lateral sewers, of $9,582,208.13.

Lateral Sewers Needed to Complete System.

Even in the districts where trunk sewers have been constructed, however, lateral sewers to connect with the trunk sewers have not been built throughout the districts. At the present time, approximately 30 per cent of the property served by trunk sewers is not directly connected, due to the absence of lateral feeders.

A large number of residences in districts already served by trunk sewers are still connected with cesspools and similar forms of sanitary facilities which are entirely inadequate under modern conditions. Until lateral sewers are constructed to connect with the trunk sewers the use of cesspools and similar unsatisfactory devices cannot well be obviated.

The city ordinances are adequate for regulating the construction of cesspools. They must be carried down to a stratum that is sufficiently pervious to permit passage of the liquid portions of the sewage. They must be encased with concrete, brick or similar durable material and must be covered with a thick slab of concrete or similar covering. At least a foot of earth or similar solid filler must be placed on top to prevent the escape of noxious fumes and effluvia.

Section 127, of the Housing Code, by its wording, legalizes privy vaults, by stating that, "whenever a connection with a sewer is possible," etc., "all privy vaults" etc. "shall be removed," etc. This leaves the interpretation of "possible" open to contention, and hence weakens the entire provision, or entangles the health officer in arguments which are apt to be decided by political expediency.

New Construction Planned.

The 42 per cent of area, still without trunk sewerage facilities, consists of the Peninsula and St. Johns districts, sloping toward the Columbia river, west of Deleware avenue; the Lents district in the southeasterly portion of the city, east of 60th Street, S. E., and south of Powell Valley Road, and a few small scattered districts near the city boundary.

Plans have been prepared for the construction of trunk sewers in the St. Johns and Lents districts. These will probably be carried to completion within the next two or three years.

Sewers constructed during the past ten years have been built along sound engineering lines, and should meet all demands placed upon them for several generations.

The three features of sewer construction which should have special attention are the following:

(1) The substitution of larger and more modern sewers in the streets running east and west, in the West Side business district.

(2) The construction of lateral sewers in districts already served by trunk sewers.

(3) The construction of intercepting sewers, along both the east and west banks of the Willamette River, extending clear out to the Columbia

River, to divert sewage from the upper harbor, the section of dense population and concentrated sewage discharge.

The sewers constructed many years ago, in the streets running east and west through the West Side business districts, are entirely inadequate to meet requirements, and are, in many cases, defective in construction. Their inadequacy was brought painfully to the mind of the public during the period of high water in the Willamette River last year.

Sewage In Willamette River May Become Nuisance.

The current in the Willamette River is rendered almost nugatory in its effect during periods of high water in the Columbia River. Consequently, the river becomes contaminated and sanitary conditions are far from satisfactory. As the city grows and additional trunk sewers are constructed into the Willamette River, intercepting sewers along both banks will be needed to receive and carry the sewage to a point beyond the inhabited portions of the city. The sewage can then be turned into the river, or some type of sewage disposal plant may be used.

Sewage cannot well be dumped direct into the Willamette River, later than 1930, if the city's population continues to increase at its present rate. By that time the pollution of the river will be a continuous nuisance and a possible menace to the public health.

By 1930, also, lateral sewers should be constructed throughout the portions of the city not now served. On the basis of the present growth in population, sufficient residences will have been built to necessitate these laterals and to make their construction financially possible.

The question of sewage treatment is not so urgent in Portland as in many other cities of equal size, because neither this city nor its sister cities and villages downstream are required to use the river water for domestic purposes.

SUMMARY

Up to the present time, the quantity of sewage has not taxed the capacity of the Willamette and Columbia rivers to carry it away.

Trunk sewers which may serve 58 per cent of the property in city have been constructed; 30 per cent of this property is not connected with trunk sewers due to the absence of lateral feeders. Use of cesspools and other devices cannot be obviated until lateral sewers are constructed.

Needs of the near future are: larger and more modern sewers in West Side business district; lateral sewers in districts already served by trunk sewers, and intercepting sewers to the Columbia river along both banks of the Willamette, to divert sewage from the upper harbor.

GARBAGE COLLECTION AND DISPOSAL

The disposal of garbage may assume sanitary importance in this city. At the present time there is no established system of collection, the disposal of all refuse being left to the individual. As a result of the lack of system, many nuisances exist in the city. These may become of sanitary significance through the breeding of flies, and the furnishing of an abundant and varied food supply for rats.

Ordinance No. 33986 provides that it shall be unlawful to allow garbage and offal to remain on the premises, and further provides for proper receptacles for the storage of such refuse and establishes regulations for those engaged in collecting and removing same. It is apparent throughout the city that Portland residents have no objection to a disregard of these features of the ordinance.

The city incinerator provides inadequate and uneconomic means for the disposal of the refuse irregularly collected by licensed garbage men through private contract with individual householders.

A properly equipped and administered incinerator, supplied through systematic collection of garbage, or at least through municipally controlled collection, is an asset for any city from a sanitary standpoint.

HOUSING

Individuals living in communities must have privacy in their lodgings and protection from the elements. In addition, safety must be assured in so far as possible, from fire and disease hazards.

Proper air, light and heat in dwelling places are of immediate concern to the people since their improper use may lead to a predisposition to disease.

Ordinance No. 34945, adopted in 1919, known as the Housing Code, provides certain sanitary, health and safety regulations covering the construction, alteration, maintenance, occupancy, use, equipment and removal of buildings which are occupied in whole or in part for dwelling purposes.

Since its adoption in 1919, there has been an unwise tendency to make the code more liberal through numerous amendments and special exceptions which have nullified important regulations for the public health and safety.

The ordinance provides that Parts II and III, of the Housing Code, referring to the construction of new buildings and alterations, shall be enforced by the Bureau of Buildings, and that, Parts IV and V, referring to maintenance and improvements, shall be enforced by the Bureau of Health.

Housing regulations have such an important bearing on public health that the question should be thoroughly studied by the special Housing Committee, recently appointed by the City Club.

PORT INSPECTION

The location of the city on a navigable river, accessible to both foreign and interstate trade, necessitates port supervision, a measure required to prevent the ingress to the city of communicable diseases, and to insure the sanitary conditions of common carriers and their common facilities along the river.

Port inspection includes the inspection of ships, docks and harbors. Ship inspection is concerned with the general sanitary conditions which may involve cargoes capable of spreading disease, and those conditions which may result in disease among crew or passengers. The physical condition of crew and passengers must also be inspected to prevent the introduction of disease into the community.

Dock and harbor inspection is concerned with the prevention of nuisances, the removal of filth and refuse or animal corpses and the control of the water furnished crew and passengers of ships for drinking and bathing.

The inspection of ocean-going vessels engaged in foreign trade is executed systematically by the federal government at the Columbia River Quarantine Station of the U. S. Public Health Service at Astoria, Oregon. These ships are obliged by law to comply with federal quarantine regulations for the prevention of the introduction of disease into the port.

Coastwise shipping between the ports of the United States is not systematically inspected.

Steamboats which ply the river are not systematically inspected, but are subject to inspection by the U. S. Steamboat Inspector.

City Ordinance No. 33696, regulating the use of docks, provides for sanitary measures relative to the proper lighting of the docks and gangplanks and for safety nets under gangplanks. It also restricts the throwing of refuse into the harbor.

Four Men Inspect Twenty-six Miles of Water Front.

The enforcement of these measures is left to the harbor police. This force consists of a chief and three men whose services are in demand over the entire twenty-six miles of water front.

There should be provided, with the growth of the port, a federal inspector and a city or state inspector, who have been trained in sanitation. These men should cooperate in a systematic manner with the U. S. Steamboat Inspectors, and other agencies in controlling the sanitary conditions of ships and crews.

INDUSTRIAL HYGIENE

The growth and specialization in municipal life and industry no longer permit the individual to arrange his working hours and conditions. There must be provided regulations of both a general and a technical nature to protect the health of that large element of the producing public which operates the industries of the city. These people are frequently subjected to conditions which present special hazards to their health and life.

General industrial hazards apply to all industrial establishments. Improper lighting, improper ventilation, and undue fatigue are considered in this group. Special hazards are those incident to the particular industrial process, such as exemplified by exposure to excessive heat in smelting, exposure to noxious fumes in chemical manufacturing, and exposure to irritating dusts in lumber mills, woolen mills and stone-cutting.

The establishment of a proper hygiene for these industries requires technical study of the processes involved, and adequate but reasonable regulations thoroughly enforced.

III. PUBLIC HEALTH AND SOCIAL SERVICE

The foregoing sections of this study deal largely with the Bureau of Health, the official health agency of the city. This section deals with the social service agencies which, though voluntary and unofficial, are essential in carrying on the health work of the city.

Though not empowered with police power, as is the Bureau of Health, they accomplish their purposes principally through that most powerful of all health methods, the education of the public, and they are a vital factor in the work of removing menaces to the health of the community, preventing disease and caring for those who are afflicted or dependent.

MATERNAL AND INFANT WELFARE

An important feature of public health activities is that specialized work concerned with properly nurturing the child in the first few years of its life. The young child requires careful supervision of its food supply, and a correction of its physical defects that it may have even a fair chance to develop normally.

A certain portion of the causes of death during the first year of life are controllable or preventable (intestinal and infectious diseases), while the rest of the causes may be classed as non-controllable (malformation and prematurity). The fluctuation noted in infant mortality statistics in different cities is found chiefly in the controllable or preventable class of diseases. The percentage of non-controllable diseases remains more or less constant for all cities. Cities which have shown a marked reduction in infant mortality are those which have indicated the most zeal, intelligence and efficiency in infant welfare work, brought about by: (1) teaching mothers pre-natal care, infant care and breast feeding; (2) insuring a pure milk supply with free distribution where necessary; and, (3) educating children in hygiene and dietetics through free clinics and nutrition classes.

The work of the Co-operative Infant Welfare Society of Oregon is an example of what can be done in the matter of lowering infant mortality. The Society's well baby clinic in South Portland at the Neighborhood House, in operation for 12 months, has cared for 193 babies and no deaths have occurred during that time. A second well baby clinic has been organized in the Mt. Scott District at Arleta station. As this Society has pointed out, from a study of relative costs, "it is cheaper to save babies than to bury them."

Other agencies allied in infant welfare work are:

1. The Portland Free Dispensary, which maintains a pediatric department, open three days a week for the treatment of sick infants and children.
2. The Visiting Nurse Association, which follows up all maternity cases for one year after birth.
3. The Waverly Baby Home, the Albertina Kerr Nursery, Jewish Shelter Home, Haviland Home, Childrens Home and the Boys and Girls Aid Society,

all of which are operated in the city under the supervision of the State Child Welfare Commission.

SCHOOL INSPECTION

Portland has 41,827 school children whose health is supervised by five nurses and two half-time medical inspectors. This supervision would accomplish little, were there not supplemental care of the child and family in the home. School inspection consists of scrutiny for cases of contagious disease, evident defects of vision, and hearing, and a careful look out for children who are handicapped by diseased teeth, tonsils and adenoids. The nurse does not treat the case, but reports it to the parent, and to proper authorities and refers the child either to the free dispensary or to its physician. It is evident that this important work cannot be accomplished through a method in which one nurse is charged with the supervision of 8000 children.

The duty of following these children into their homes to see that conditions are proper for their development and health is assured in part by private or volunteer health agencies.

Contact between the parents of the children and the school nurse is provided for through Parent-Teacher Associations. These circles have been established in 56 schools, but should be in all schools, and should have a definite health program contributed by the school nurse, under the direction and supervision of the health officer.

The benefit of a well-conducted school in the open air is demonstrated in Portland by the Mills Open Air School, which has gained a nation-wide reputation. Such a school is particularly beneficial to children who are weak, undernourished and easily susceptible to disease. Children with communicable diseases are not permitted to enter.

ANTI-TUBERCULOSIS ACTIVITIES

Tuberculosis is a communicable disease which has defied all authorities and has baffled all agencies in preventing its dissemination. Its prevention is believed to be largely a social economic problem. Police power has been of little value in preventing the spread of the disease.

Anti-tuberculosis work is conducted by the city bureau almost entirely through volunteer agencies, to which the city contributes very meager financial support.

In the conduct of this work in Portland, the Oregon Tuberculosis Association contributes executive service, nurse service, and financial aid.

Cases are reported by physicians to the Bureau of Health, which in turn calls on the Visiting Nurse Association to visit the patient, instruct him and his family, and render such aid as is possible. Statistics are reported by all agencies to the Oregon Tuberculosis Association.

Medical care is offered by the Free Dispensary in its Tuberculosis clinic under the People's Institute.

The patient who needs hospital care and is not admitted to the state institution, and who cannot afford to be treated at a private sanatorium, is an outcast in so far as hospital treatment is concerned. This condition exists because of Article III, Section 3 of Ordinance No. 33986, which prescribes that pulmonary tuberculosis may not be treated in hospitals within the city limits. The National Tuberculosis Association and the Surgeon General of the United States Public Health Service have both recommended on good scientific evidence that these cases be treated in separate wards in any general hospital.

OUT-PATIENT CLINICS AND VENEREAL DISEASES

The only out-patient clinic in the city is the Portland Free Dispensary which is operated by the Peoples Institute in conjunction with the University of Oregon Medical School. The clinic is open daily, except Sunday, and maintains departments in medicine and surgery and all the specialties. The total number of treatments given in 1920 was 10,158, which was increased to 16,351 in 1921.

The Dispensary has an immense field of usefulness and although its quarters were enlarged and more equipment added this year, there is still a need for further enlargement and addition.

Venereal disease clinics for both men and women are conducted at the Dispensary three days weekly.

Several institutions care for and treat venereally infected women. The Cedars, under city management, cares for infected women. The House of the Good Shepherd cares for both non-infected and infected girls. The Louise Home cares for both types of girls and maternity cases. The Florence Crittenden Home and the Salvation Army White Shield Home care for both types of maternity cases. Most of the venereally infected women find their way to these institutions by way of the court.

From a sanitary point of view, it does not seem the best plan that venereally infected and non-infected girls, even though both may be wayward, should be housed together.

Numerous other health activities are carried on by the many private and philanthropic volunteer agencies. An appreciation of the possibilities of these associations for education in sanitary measures can be obtained by enumerating some and giving a synopsis of the organization, duties and foundation of others.

Such an enumeration is given in the Appendix.

IV. RECOMMENDATIONS

As a result of a preliminary general survey of Public Health Methods and their application in Portland, which has revealed the conditions described herein, the following recommendations for further study of particular questions and definite work toward the solution of the problems involved are presented for the consideration of the City Club.

I. The City Club should initiate immediately a movement toward having the city publish its ordinances in printed form convenient for consultation.

II. The City Club should study, in detail, the administration of health departments, to determine whether Portland's Bureau of Health can be better organized under the existing charter and laws.

III. The City Club should study the charter provisions relating to the Bureau of Health, in order that the Club may act intelligently upon a revision of the charter to eliminate the conflict of laws and court decisions concerning the status of the bureau, prevent the control of important technical bureaus by individuals without suitable training and make the health laws of the city conform with those of the state and federal government.

IV. The City Club should study the question of the advisability of conserving the water supply of the city by the use of meters.

V. The City Club should study the need for extension of the present system of sewage disposal to meet future requirements.

VI. The City Club should study the need for systematic collection of garbage.

VII. The City Club should seek information on the subject of health hazards and hygiene in industry.

VIII. The City Club should study the city ordinances regulating the sale of milk, meats and other foods for the purpose of having the ordinances revised to bring about the supervision of that part of the food supply which at present is not inspected.

IX. The City Club should study the subject of maternal and infant welfare for the purpose of preserving the health of infants and lowering the infant mortality rate.

X. The City Club should study the subject of school inspection, its needs and possibilities.

XI. The City Club should interest itself in the repeal of Article III., Section III of Ordinance 33986, which prevents hospitalization of cases of pulmonary tuberculosis within the city limits.

XII. The City Club should study the work of the social and welfare agencies of the city to bring about greater co-operation between these agencies and the Bureau of Health.

XIII. The City Club should suggest that the city publish annual reports of the Bureau of Health for the information of the public.

APPENDIX

WELFARE ORGANIZATIONS

The ultimate responsibility for the health of the community rests with the official health authorities. When this fact is recognized by the unofficial social service agencies and the force of their resources, freedom from political limitations and spirit of service is placed in co-operation with the Bureau of Health, improvement in the enforcement of public health regulations is certain to result. Portland has many well-organized and efficient voluntary agencies.

Nearly every organization engaged in social service, is necessarily accomplishing public health work, for example: The Woman's Protective Division of the police department, Court of Domestic Relations, Catholic Woman's League, Y. M. C. A., Y. W. C. A., and all the various religious denominational social agencies. The Pacific Coast Rescue and Protective Association, the Florence Crittenden Home, and the Salvation Army White Shield Home render public health and social service.

STATE CHILD WELFARE COMMISSION

The State Child Welfare Commission is appointed by the Governor. The present Commission consists of a chairman, two laymen, one social service expert, one physician (child specialist), one full-time salaried secretary and one stenographer.

The Commission has supervision over child-caring institutions and child-placing (adoption) and maternity homes. Such institutions in this city are:

Maternity Hospitals.
- Coe Maternity Hospital.
- Thayer Maternity Hospital.
- Hart & Hart Maternity Hospital.
- Portland Maternity Hospital.
- Woman's Hospital.
- Mrs. Woodruff's Home.

Child-Caring Institutions.
- Home of the Good Shepherd.
- Albertina Kerr Nursery.
- Florence Crittenden Home.
- Salvation Army Rescue Home.
- Waverly Baby Home.
- Children's Home.
- Boys and Girls Aid Society.
- Jewish Shelter Home.
- Haviland Home.

The Commission issues official standards for placing, supervision and after-care of dependent children, certificates of approval and licenses, and a biennial report.

OREGON TUBERCULOSIS ASSOCIATION

The Oregon Tuberculosis Association is a state-wide organization with a board of seventy-two directors from whom its officers are elected. It is supported entirely from the annual sale of Christmas Seals. It is affiliated with the National Tuberculosis Association and with similar organizations in other states. The objects of the Association:

1. Dissemination of knowledge concerning the causes, treatment and prevention of tuberculosis.
2. Investigation of the prevalence of tuberculosis in the state.
3. Securing of proper legislation for the relief and prevention of tuberculosis.
4. Co-operation with the public authorities, state and local boards of health, the National Tuberculosis Association, medical societies and other organizations in the enforcement of approved measures for the prevention of disease.
5. Promotion of the organization and work of such branch associations as may be needed.
6. Encouragement of adequate provision for consumptives by the establishment of sanatoria and dispensaries and by the employment of public health nurses.

The Association does administrative work in 15 county branch associations in the state, and also at the Portland Open Air School.

It publishes two free monthly bulletins: *Health First* and *The Lance and Shield.*

BUREAU OF PUBLIC HEALTH NURSING AND CHILD HYGIENE OF THE STATE BOARD OF HEALTH

The objects of the Bureau are to promote, supervise and standardize public health nursing, and to conserve maternal and child health.

Under the Bureau's supervision are all public health nurses in the state, industrial nurses and school nurses. This supervision does not extend to private nurses or those in hospitals.

The Bureau does no actual public health nursing itself, but acts in a supervisory and advisory capacity with existing organizations. The function of carrying out the work outlined in the Sheppard-Towner Maternity Bill is now added to the Bureau of Nursing.

VISITING NURSE ASSOCIATION

The Visiting Nurse Association, a private organization now in its twenty-first year, has a staff consisting of a superintendent and eleven nurses. Financial aid is obtained from the Community Chest, private subscriptions, membership dues, City Bureau of Health, Oregon Tuberculosis Association and from patients.

The city is divided into the following eight districts for the work of the Association: St. Johns, Montavilla, Mt. Scott, Lents, Albina, Sellwood, North Portland and South Portland.

Patients who need care and instruction are reported to the Association by physicians, the Bureau of Health, Oregon Tuberculosis Association, Metropolitan Life Insurance company, institutions, industrial plants and by individuals.

With the exception of communicable diseases, the Visiting Nurses visit all classes of patients. A special department of tuberculosis work is maintained, through which all tuberculosis cases in the city are investigated and a full report sent to the Oregon Tuberculosis Association. A nurse is provided for the tuberculosis clinic of the Portland Free Dispensary. Nurses are also supplied for the well baby clinics.

CO-OPERATIVE INFANT WELFARE SOCIETY OF OREGON

The activity of this Society is centered in Portland. It is composed of a board of directors with representatives from the various agencies interested in infant welfare, namely: the Social Service Extension department of the University of Oregon Medical School, The Jewish Benevolent Society, City Bureau of Health, State Board of Health, Visiting Nurse Association, Peoples Institute, Oregon Tuberculosis Association, and State Bureau of Nursing.

The purpose of the Society is to establish and maintain a Well Baby Clinic, including pre-natal and pre-school clinics, for every 20,000 of population. The detailed work of the Society is given elsewhere in this report.

PUBLIC WELFARE BUREAU

The Public Welfare Bureau is governed by a board of directors. The Bureau specializes in family social work, but also cares for all types of unfortunates. Tuberculosis, mental defects, venereal disease, family desertion, unemployment, bad housing and juvenile delinquency cause many of the social problems.

The Bureau is financed by the Community Chest. It also administers the Multnomah county fund for relief and reports to the county commissioners.

The city is divided into seven districts, with field workers in charge of each district. Volunteer workers committees are organized and a portion of the field work is done by these volunteers under the trained workers of the Bureau.

The University of Oregon School for Social Work, uses the Public Welfare Bureau as a laboratory for its field work. The University's class in public health nursing also has its first work in the Bureau.

PEOPLES INSTITUTE AND FREE DISPENSARY

The Peoples Institute and Free Dispensary is a private organization with a board of directors from whom its officers are elected. It is supported by funds from the Community Chest, from members and from the city.

It is:—"An undenominational institution, the object of which is to work for the betterment of social and civic conditions, and to extend educational, industrial, social, medical and friendly aid to those in need."

The chief public health activity of the organization is the Portland Free Dispensary which is operated in conjunction with the U. of O. Medical School.

The social service work is conducted through the visits of a paid assistant and volunteers who visit the homes of many of those who attend the dispensary.

The Dispensary is in great need of more room and equipment.

PARENT-TEACHER ASSOCIATIONS

There are Parent-Teacher Associations in 56 schools in the city.

Twenty milk-stations have been established in co-operation with the Oregon Dairy League.

It is intended to have a committee on health in each circle working with the school nurse. This will give a point of contact between the Bureau of Health and the parents.

Other organizations of public-spirited citizens, including the medical and dental professions, are contributing to this valuable work of social service in its relation to public health.

ORGANIZATION AND PERSONNEL OF BUREAU OF HEALTH

The table below gives the personnel of the Bureau of Health, the salary received by each officer and employee and the number of hours each works. The health officer, his assistant and the quarantine officers are subject to call at any time and rarely spend less than twelve hours a day on duty.

Personnel	*No.*	*Salary*	*Hrs.*
Main Office:			
Health Officer	1	$350.00	12
Chief Clerk	1	175.00	12
Stenographer	1	125.00	8
Clerk	2	125.00	8
Contagious Division:			
Ass't Health Officer	1	250.00	12
Quarantine Officer	2	200.00	12
Isolation Hospital:			
Supt. Nurse	1	100.00	12
Ass't Supt. Nurse	1	75.00	12
Nurse	2	50.00	12
Cook	1	100.00	10
Utility Man	1	50.00	10
Emergency Hospital:			
City Physician, ¾ time	1	150.00	6
Physician	1	175.00	8
Physician	1	125.00	8
Physician	1	75.00	8
Nurse	1	125.00	8
Sanitary Division:			
Chief Sanitary Insp.	1	175.00	8
Sanitary Inspector	7	140.00	8
Housing Code Insp.	1	140.00	8
Physician, full-time	1	150.00	8
Physician, 2-3 time	1	125.00	5
Physician, ½ time	1	75.00	4
Clerk	2	115.00	8
Milk Division:			
Chief Milk Insp.	1	$190.00	8
Milk Chemist	1	175.00	8
Veterinarian	1	160.00	8
Milk Inspector	3	150.00	8
Milk Inspector	1	140.00	8
Meat Division:			
Chief Meat Inspector	1	190.00	8
Meat Inspector	4	160.00	8
Bacteriological Laboratory:			
Bacteriologist, ½ time	1	170.00	4
Ass't Bacteriologist, full time	1	125.00	8
School Inspection Division:			
Chief School Inspector, ½ time	1	110.00	5
School Insp., ½ time	1	90.00	4
School Nurse	1	125.00	8
School Nurse	4	110.00	8
Dentist, 1 day per week	1	12.50 per day.	

TOTAL AMOUNT APPROPRIATED FOR 1921:	
Main Office	$10,800.00
Contagious Division	7,800.00
Isolation Hospital	5,100.00
Emergency Hospital	7,800.00
Sanitary Division	22,500.00
Milk Division	13,380.00
Meat Division	9,960.00
Bacteriological Laboratory	3,540.00
School Division	8,300.00
Total Salaries	$ 89,180.00
Operation and Maintenance	40,871.91
Misc. Appropriations	251.59
Grand Total	$ 130,303.50

The amounts named below were collected by Bureau of Health and paid into the general fund.

Collections	*1920*	*1921 Half Year*
Antitoxin	$ 340.00	$ 625.00
Hospital, contagious	416.86	1,918.00
Certified copies	27.50	200.00
Sanitary Division	18,498.00	9,924.00
Total	$ 19,582.36	$12,667.00

MEAT AND MILK REPORTS

The following reports were taken from the annual report of the City Health Officer, Dr. George Parrish:

MILK DIVISION

By Dr. D. W. Mack,
Chief Dairy and Milk Inspector.

Dairy Inspection

Dairy herds tested for tuberculosis	521
Dairy animals tested for tuberculosis	6162
Dairy animals reacting	192
Dairy animals suspicious	22
Animals reactors and suspicious reactors slaughtered	201
Carcasses passed for food	162
Inspections of dairies	2563
Inspections of creameries and milk depots	631
Inspections of restaurants and hotels	59
Inspections of boats, trains and autos	76
Inspections of public markets	78
Total number of inspections	3407
Number of gallons of milk returned to producers	6455
Number of gallons of milk condemned and destroyed	525

Milk Analysis

Number of samples of milk and cream brought in by inspectors	5431
Number of samples of milk and cream brought in by citizens	841
Total number of samples analyzed	6272
Per cent of samples below standard	1.0%

MEAT DIVISION

By Dr. E. E. Chase.

Number of carcasses inspected and passed for food purposes:

Beef	10,858
Hogs	40,890
Veal	42,878
Sheep	26,950
Goats	408
Total	121,984

Number of carcasses inspected and condemned:

Veal	47
Beef	26
Hogs	34
Sheep	26
Goats	10
Total	143

No. of hog heads condemned on account of tuberculosis	1,426
No. of livers condemned on account of abscesses and parasites	2,061
No. of pounds of meat condemned on account of sourness and decomposition	18,136